Wireless LAN 802.11g NIC Series

User's Guide

Version 1.3

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1. Introduction

Thank you for purchasing your Wireless LAN 802.11g Adapter. This Quick Installation Guide will assist you with the installation procedure.

The package you have received should contain the following items:

- Wireless LAN 802.11g Adapter
- Quick Installation Guide
- CD containing Wireless LAN Management utility, drivers and Multi-lingual User's Guide
  Note: if anything is missing, please contact your vendor

The CD contains drivers and Configuration Utility program that is used for managing the Wireless LAN Adapters and establishing the wireless connection with your Local Area Network.

Note: This manual is valid for all Wireless LAN 11g Series products, such as PC Card, USB, mini-USB, PCI adapter, mini-PCI…etc.

2. Wireless LAN Basics

Wireless LAN (Local Area Networks) systems offer a great number of advantages over a traditional, wired system. Wireless LANs (WLANs) are more flexible, easier to setup and manage and often more cost effective than their wired equivalence.

Using radio frequency (RF) technology, WLANs transmit and receive data over the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs.

With wireless LANs, users can access shared information without looking for a place to plug in and network managers can set up or augment networks without installing or moving wires. Wireless LANs offer the following productivity, convenience and cost advantages over traditional wired networks:

- Mobility - Wireless LAN systems can provide LAN users with access to real-time information anywhere in their organization. This mobility supports productivity and service opportunities not possible with wired networks.

- Installation Speed and Simplicity - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.

- Installation Flexibility - Wireless technology allows the network to go where wires cannot go.

- Reduced Cost-of-Ownership - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.

- Scalability - Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer to full infrastructure networks, also allow roaming over a broad area.

3. Installation for Windows platform

The following section will assist you in installing wireless LAN Adapter successfully. You will first install software (Utility) and then insert / attach the Wireless LAN Adapter to your system, and finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The Wireless LAN card can easily be installed and used, without bothering to connect cables for keeping your computer to use network resources.

3.1. Installation Overview

Here are some steps you will perform in establishing your wireless network connection:

- Install the Access Point at first. AP is needed in case of Infrastructure network mode.
- Install the software using the Install CD.
- Install the Wireless LAN Card (WIRELESS LAN 802.11g Adapter).
- Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

3.2. Install Procedure for Windows XP

Important Notice

In order to make right use of WPA, please ensure that your current Wireless Adapter's driver, and Wireless Utility can support it, WPA needs 802.1x authentication (when RADIUS mode is chosen), though the Operating System must also support 802.1x protocol. For Microsoft's OS family, only Windows XP has incorporated this by default. The rest of the OS must installed 3er party's client software such as Funk ODySSey.

Note: Do not insert the **WLAN Adapter** until you are asked to do so, failure of which may result in unsuccessful installation of your **WLAN device.**

1. Insert the given Installation CD in the CD-ROM and then click on the **Install Config Utilities.** Follow the instruction to finish the installation.
2. Insert your WLAN card into PCMCIA/PCI slot or USB connector of your system, and then system will detect new hardware.

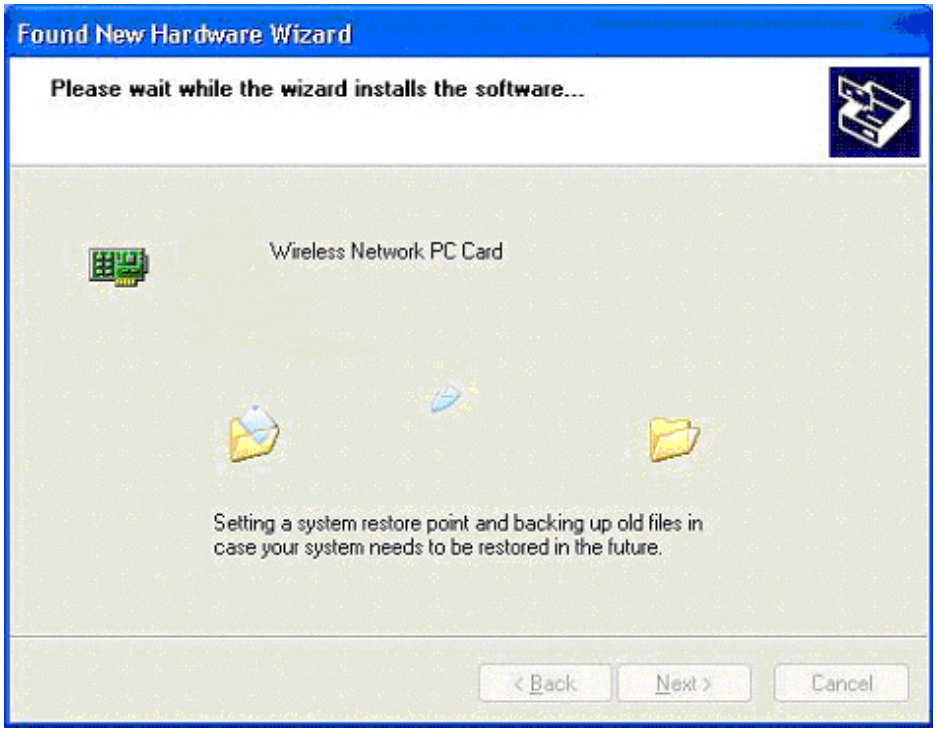
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Wireless Network PC Card
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Select **"Install the software automatically (Recommended) "**, and then click **Next** to continue.

Once your system detected the driver, Microsoft will show a warning message as below.

Hardware Installation
The software you are installing for this hardware:
Wireless Network PC Card
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Click **“ Continue Anyway ”** for next step.


Found New Hardware Wizard
Please wait while the wizard installs the software...
Wireless Network PC Card
Setting a system restore point and backing up old files in case your system needs to be restored in the future.
< Back
Next >
Cancel

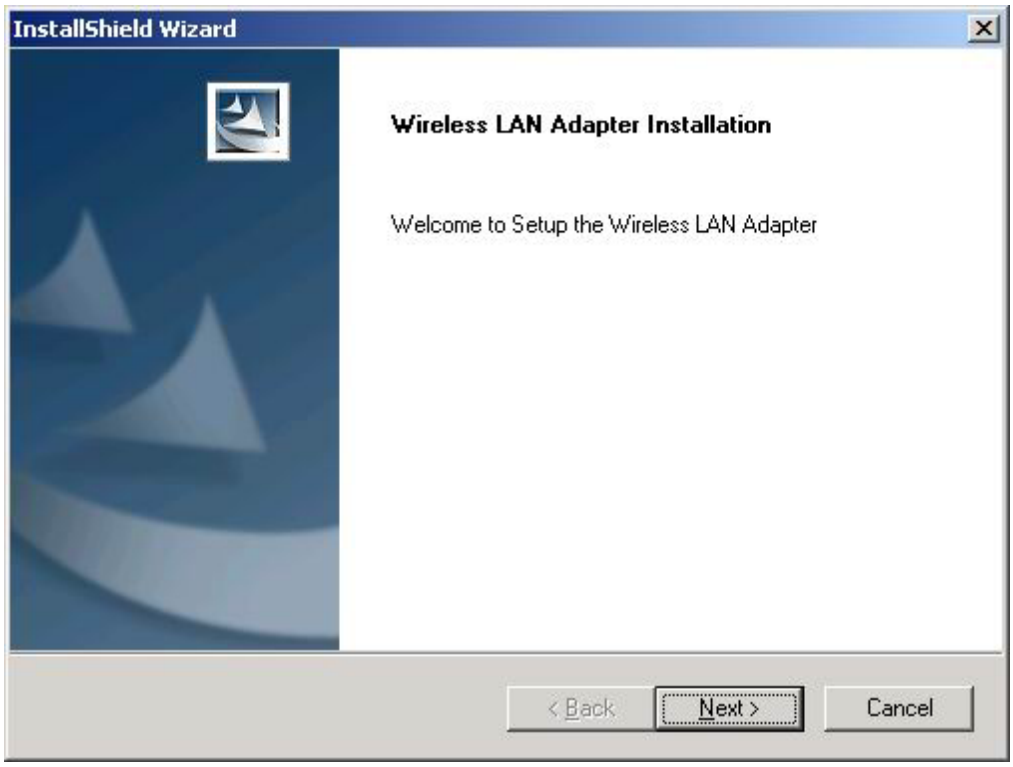
After copy the file to your system, then the setup is finish.

3.3. Install Procedure for Windows 98/ME/2000

Note: Do not insert the **WLAN Adapter** until you are asked to do so, failure of which may result in unsuccessful installation of your WLAN **device.**

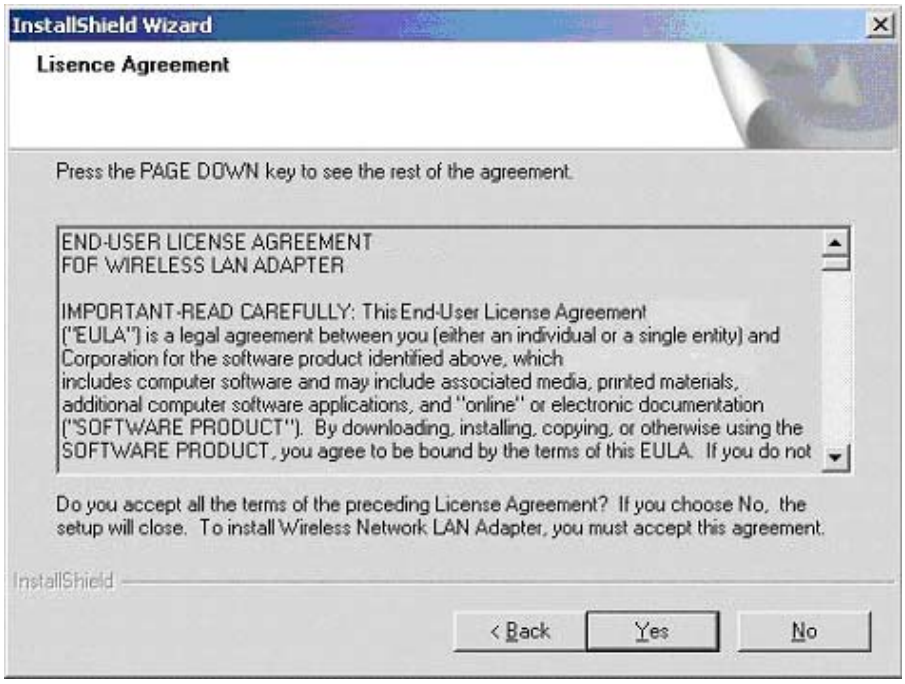
Please follow the following steps one by one in order to install the WLAN Adapter successfully.

1. Power on your computer and allow Windows 98/ME/2000 to load fully.
2. Be sure that the Wireless LAN 802.11g Adapter is not inserted yet.
3. Insert the given Installation CD in the CD-ROM and then click on the **Install Config Utilities.**

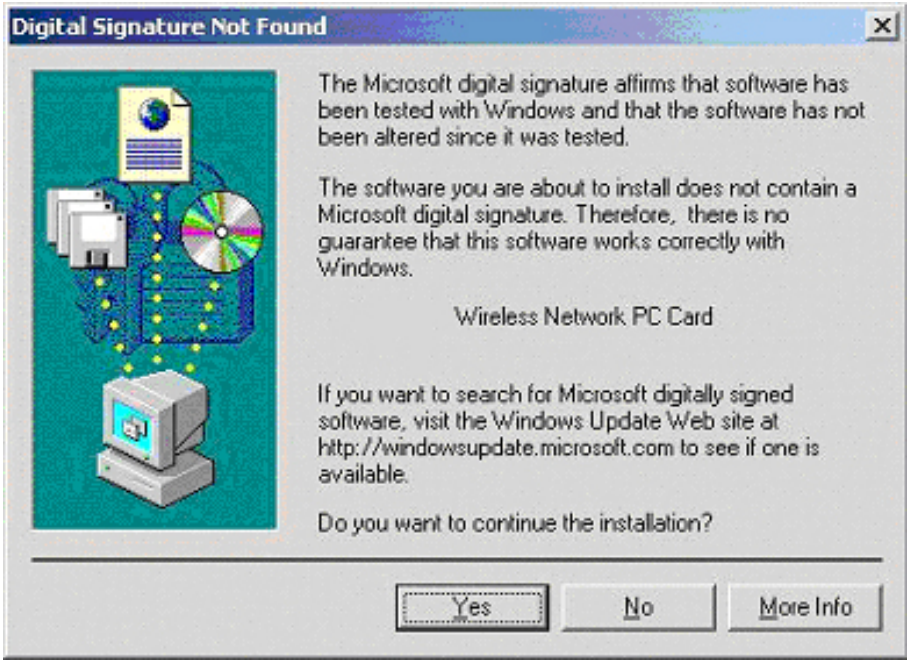


At the " Welcome" window, click **Next.**

4. Accept the license agreement.


InstallShield Wizard
Lisence Agreement
Press the PAGE DOWN key to see the rest of the agreement.
END-USER LICENSE AGREEMENT
FOF WIRELESS LAN ADAPTER
IMPORTANT-READ CAREFULLY: This End-User License Agreement
("EULA") is a legal agreement between you (either an individual or a single entity) and
Corporation for the software product identified above, which
includes computer software and may include associated media, printed materials,
additional computer software applications, and "online" or electronic documentation
("SOFTWARE PRODUCT"). By downloading, installing, copying, or otherwise using the
SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not
Do you accept all the terms of the preceding License Agreement? If you choose No, the
setup will close. To install Wireless Network LAN Adapter, you must accept this agreement.
InstallShield
< Back
Yes
No

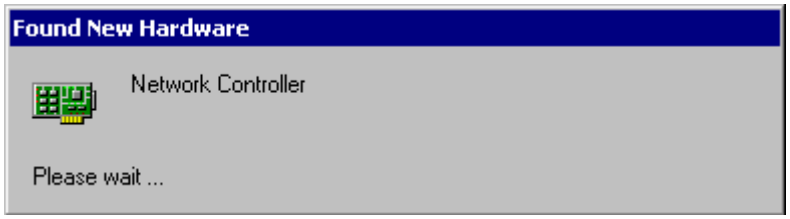
Accept the license agreement. Click **Yes** to accept.


Digital Signature Not Found
The Microsoft digital signature affirms that software has
been tested with Windows and that the software has not
been altered since it was tested.
The software you are about to install does not contain a
Microsoft digital signature. Therefore, there is no
guarantee that this software works correctly with
Windows.
Wireless Network PC Card
If you want to search for Microsoft digitally signed
software, visit the Windows Update Web site at
http://windowsupdate.microsoft.com to see if one is
available.
Do you want to continue the installation?
Yes
No
More Info

Click **Yes** to finish the setup.

5. Insert / attach **Wireless LAN 802.11g Adapter** to your system

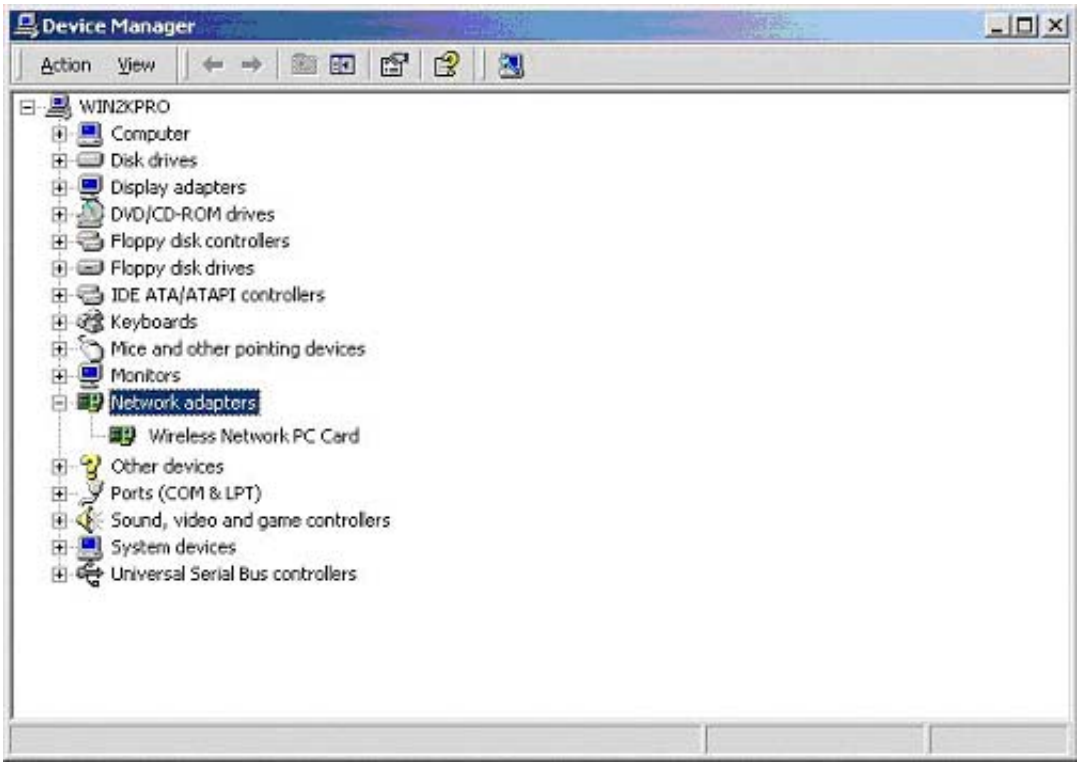
Windows will recognize the WLAN adapter and auto detect the driver, if the system did not find the driver automatically, please install the driver manually.



Found New Hardware Wizard
Completing the Found New Hardware Wizard
Wireless Network PC Card
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

Click **Yes** to finish the installation.

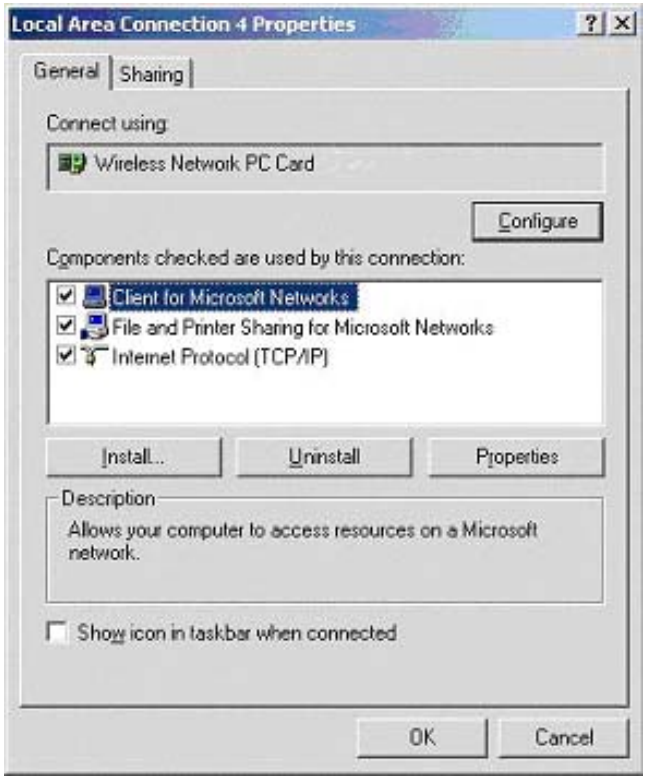
6. Click the right button of mouse on **My Computer → Properties → Hardware→Device Manager**. Check whether it has WLAN adapter in one of the sockets or not. If you find **Wireless Network PC Card** in one of the sockets, it means the card is detected properly.



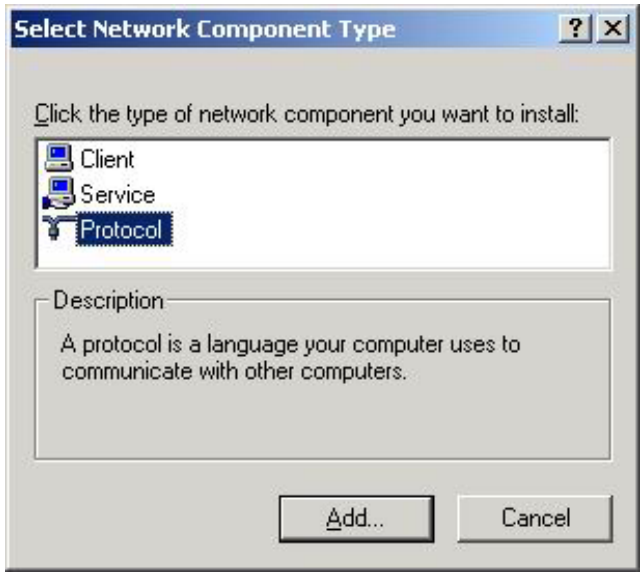
7. Click right button of mouse on the **Network Neighborhood**.

8. Select **Properties** from the pop up menu. For Windows 98 the network's properties box appears.

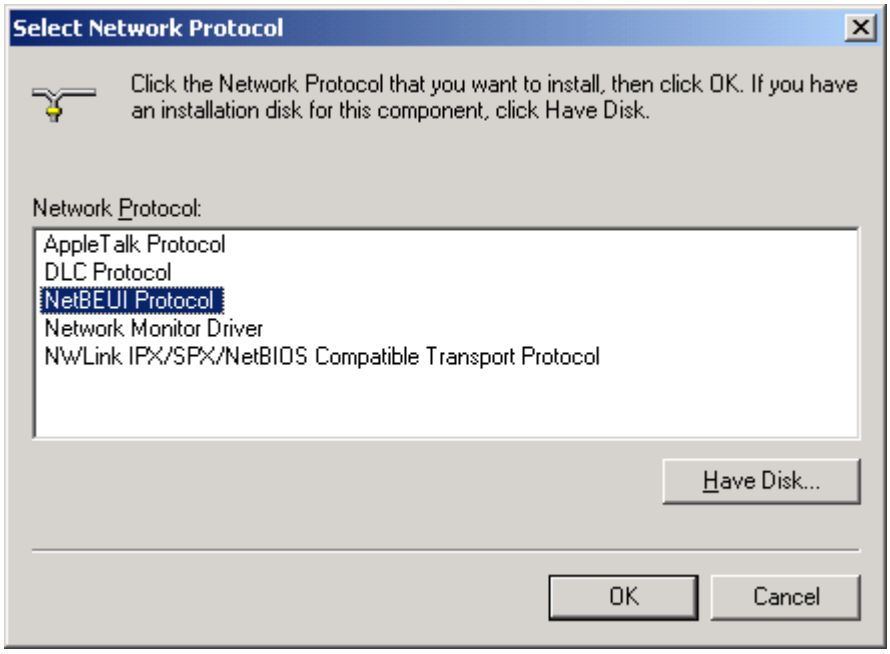
* For Windows ME and 2000, please select the Local Area Connection's properties to check the following menu.



9. Click on the **General** tab and then click on the **Install** button. Select Network Component Type box appears. Click on the **Protocol** then click the **Add** button.

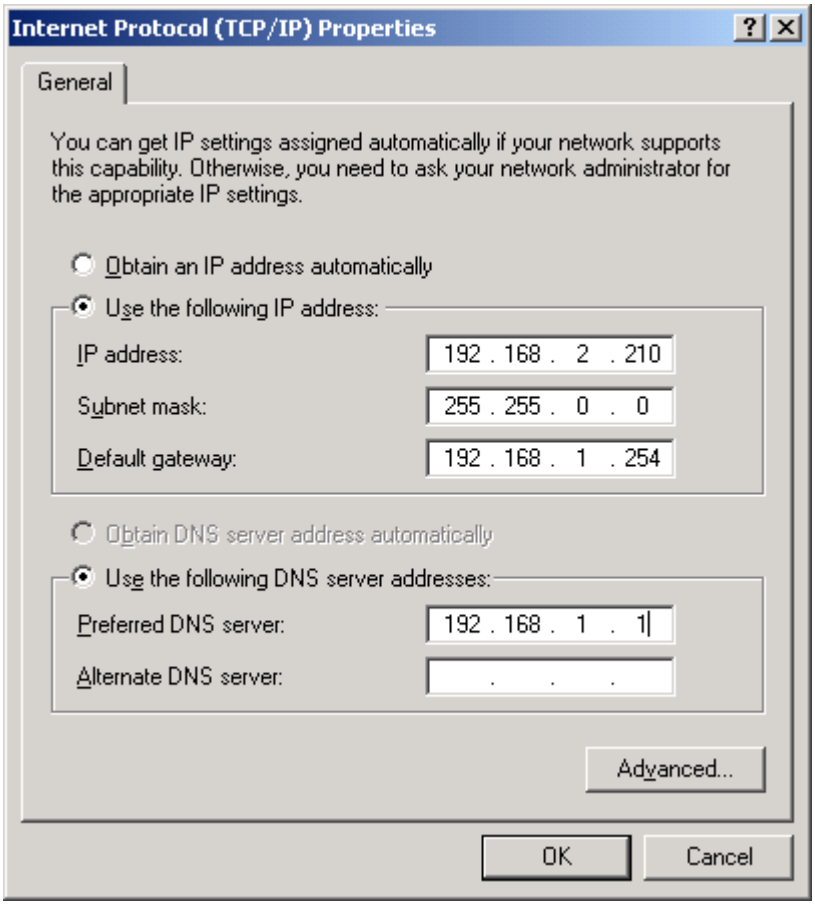


10. Select Network Protocols box appears. From the list of network protocols list, select **NetBEUI**, then click **OK**.


Select Network Protocol
Click the Network Protocol that you want to install, then click OK. If you have an installation disk for this component, click Have Disk.
Network Protocol:
AppleTalk Protocol
DLC Protocol
NetBEUI Protocol
Network Monitor Driver
NWLink IPX/SPX/NetBIOS Compatible Transport Protocol
Have Disk...
OK
Cancel

11. The **NetBEUI** protocol is now installed. After clicking on **OK** return back to Network Component Type box.
12. Repeat the step 9 and 10 to add IPX/SPX protocol.

13. Click on the **TCP/IP** option for setting the **IP** address for your computer. You can select either **Obtain an IP address automatically** or **Use the following IP address** setting. If your choice is the second one then enter the **IP** value, **Subnet** masking, **DNS**, **Domain/ Workgroup** name, and **Gateway** Address values. After setting these parameters appropriately, click OK to return to Network Component Type and you can select the **File and Printer Sharing** options as well for sharing your computers resources. Click on **OK**.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 2 . 210
Subnet mask: 255 . 255 . 0 . 0
Default gateway: 192 . 168 . 1 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 192 . 168 . 1 . 1
Alternate DNS server:
Advanced...
OK
Cancel

14. Screen message **do want to restart your Computer** will pop up. Select **Yes**. It will shut down your computer and restart.

Important: In order to make sure that the changed values could take effect, please Restart your computer before continue.

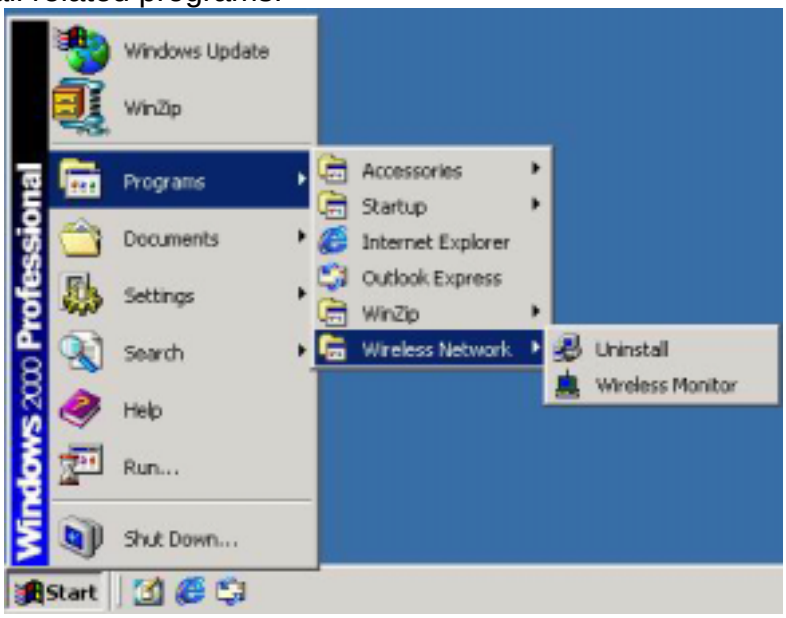
Uninstall Procedure

Step 1:

If you want to uninstall the WLAN adapter, just simply click

Start Menu → Program → Wireless Network → Uninstall,

it shall uninstall all related programs.



Step 2:

Restart your Computer.

4. Configuration Utility

Wireless LAN 802.11g Wireless LAN adapter uses its own management software. All functions controlled by user are provided by this application. Usually this application starts automatically,

or click icon from Start Menu to start the Utility application.

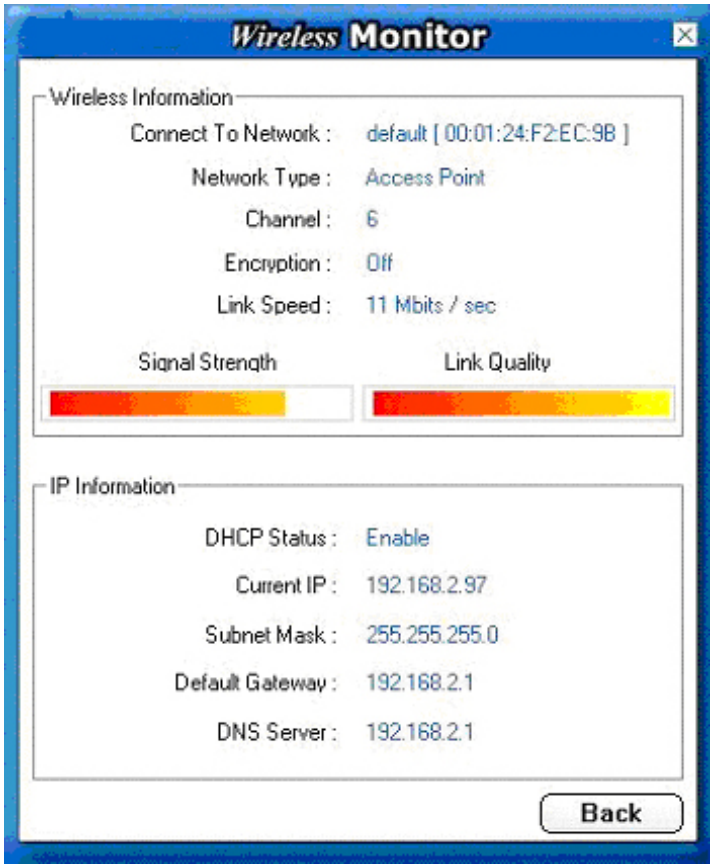
A new icon - should appear in your Icon tray. If the icon is in red, it means that Wireless LAN 802.11g NIC configuration is invalid or incomplete. Sometimes icon can be colored in yellow. This may happen when communication is defined poor connection or incorrectly.

Figure 1 Icon tray with a new icon

User can navigate through “sheets”, by clicking tabs. “X” button will minimize window. To provide more information, click “More…” button. Below description explains the use and meanings of the various screen messages.

4.1 Link Information

- **Connected To Network**



-

-

This field is used to display the current status of connection. When the state shows “Connected to Network“ means normal flow of operation in Infrastructure mode. The PC is connected to access point. Networking is available.

A state of “Scanning” means that the node is searching for available access point and detecting the SSID for an available access point within range.

This field will also display an error message for some reason if the driver fails to initialize.

Network Type

Infrastructure Mode - The driver will scan all available channels continuously until it finds one or more Access Points that match its SSID. At that point it will try and authenticate and associate with the Access Point.

Peer to Peer Mode - The driver will scan for 5 seconds looking for an existing Ad Hoc network using the same SSID.

- **Current Channel and Transmit Rate**

Shows the channel of the radio and transmit rate being currently used for an active connection. This value has no meaning when the radio is “Scanning”

- **Link Quality**

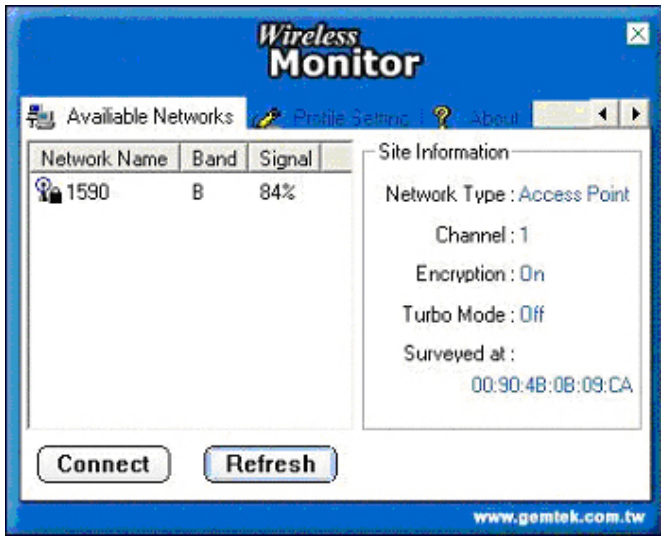
  The Link Quality bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality of the link between the node and Access Point.

- **Signal Strength**

  The Signal Strength bar graph is only active when the node is in Infrastructure Mode. The bar graph displays normalized signal strength as reported by the radio, averaged over all frames over 100 bytes long that are received from the Access Point.

4.2 Availiable Networks

The Connections Tab shows current status of available APs within the network.



User may select profile or ESSID from above list, click **“Connect”** to connect with the AP.

Click **“Refresh”** to rescan the network, this utility with site survey function, it will detect and list all available AP’s within network.

.

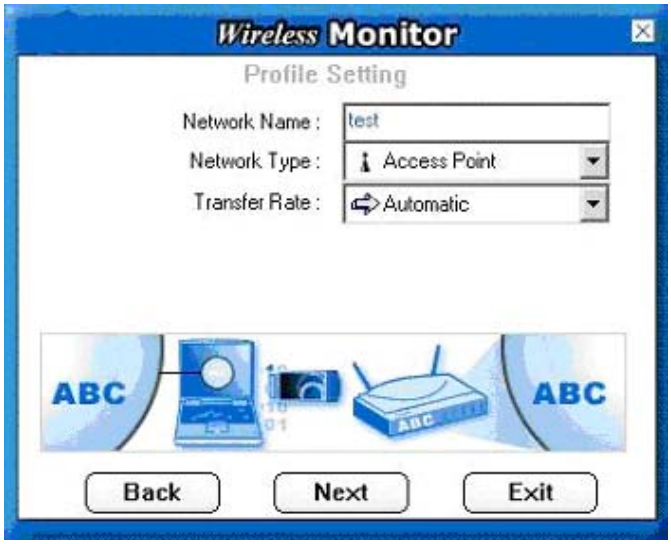
4.3 Profile Setting

Profile Setting allows user to create profiles for different network environments.

Click **"Add"** button to create new profiles.
"Edit" for editing current exist profile.
Click **"Delete"** button if you wish to delete profiles.

- **Network Type**

This field allows you to select from a list of supported Network "Modes". The modes displayed will have two values: "Peer to Peer" and "Access Point".



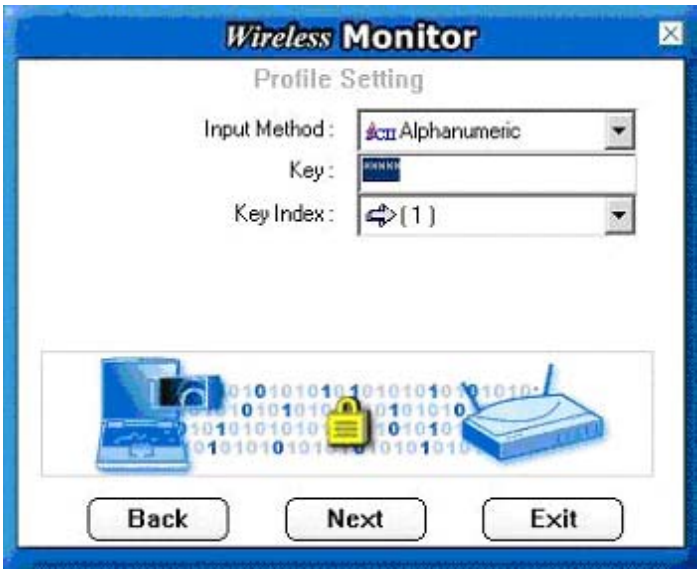
Peer to Peer - This is the 802.11g peer-to-peer mode of operation. In 802.11g Ad Hoc, only one wireless "cell" is supported for each different SSID. All communication is done from Client to Client without the use of an Access Point. 802.11g Ad Hoc networking uses the same SSID for establishing the wireless connection.

Access Point - This mode of operation requires the presence of an 802.11g / 802.11b Access Point. All communication is done via the Access Point, which relays packets to other wireless Clients in the BSS as well as to nodes on a wired network such as Ethernet.

Transmit Rate – The transmission rate at which client of AP transmits the data packets. You may set this to fixed 1Mbps, fixed 2 Mbps, fixed 5.5 Mbps, fixed 11 Mbps or Automatic for 802.11b's AP and fixed 6Mbps, fixed 9Mbps, fixed 12Mbps, fixed 18Mbps, fixed 24Mbps, fixed 36Mbps, fixed 48Mbps, fixed 54Mbps or Automatic for 802.11g's AP.

Encryption (WEP) - You may desire an additional measure of security on your wireless network, which can be achieved by using WEP (Wired Equivalent Privacy) encryption and WPA pre-shared key.

When an encrypted frame is received it will only be accepted if it decrypts correctly. This will only happen if the receiver has the WEP Key used by the transmitter.



This panel allows to entry for 64/128-bit encryption according to WEP function select. To be written to the driver and registry, such as Hexadecimal format, each key must consist of hex digits, which means that only digit 0-9 and letters A-F are valid entries. If entered incorrectly program will not write keys to a driver.

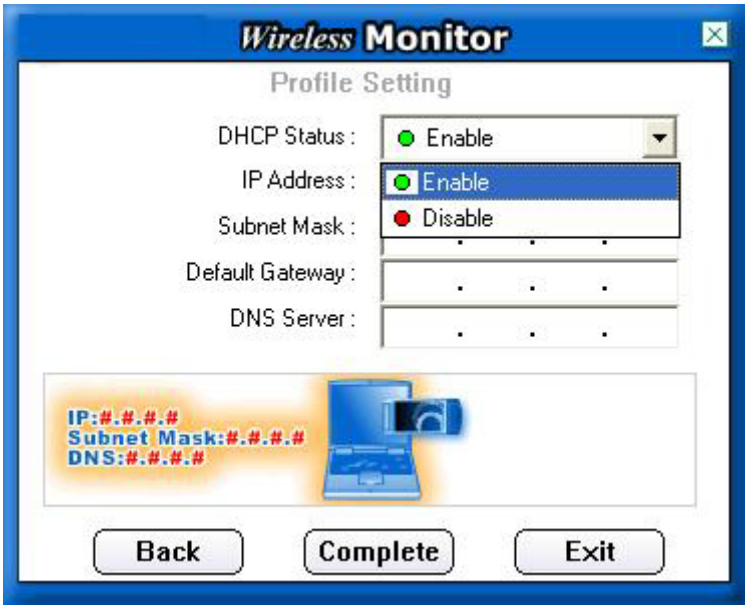
WPA pre-shared key is one advanced security for wireless network. There are 2 types algorithm could be supported – one is TKIP, and the other is AES.

To use WPA Pre-Shared Key, enter a password in the WPA Shared Key field between 8 and 63 characters long.

To enable the used of IP Setting, please select enable.

The main purpose to make used of this function is to properly configure the TCP/IP setting of each wireless connection.

Please define if the current Profile IP setting will be assign by a DHCP Server or just assign by a fixed IP that is determinate by the Network Administrator.



When the DHCP Status is Enable, the TCP/IP information will be assigned by a DHCP Server. Or otherwise please fill up with the correspondence data of the IP settings.

4.4 About

Wireless
Monitor
About
Utility Version : 1. 0. 1. 1
Driver Version : 1.2.2.74
Firmware Version : 0.90.1.44
Address : 00:90:4B:60:69:4C
Wireless Network Card
Copyright © 2002. All right Reserved.
Other Bands and product name are trademarks or registered tradmarks of their respective holders.

"About" tab shows the product version including the detail of Driver, Application and firmware versions. Users must use this version number when reporting their problems to technical support.

5. Troubleshooting

If you encounter any problems during the installation, or to confirm that the WLAN 11Mbps device is installed properly, please read the following troubleshooting section.

In Windows 98:

To check that the **WLAN 802.11g device** is installed properly, please do the following:

1. Go to **START>SETTINGS>CONTROL PANEL>NETWORK.** Choose the **Configuration Tab**. If you find the **WLAN 802.11g Adapter**, it means the card is installed properly. If you see the **Yellow Question-mark (?)** means the resources are conflicting. (Please read further in this section for solutions.)

-or-

2. Right click on **My Computer** and select **Properties.** Select the **Device Manager** and click on the **Network Adapter.** You will find the **WLAN 802.11g Adapter** if it is installed successfully. If you see the **Yellow** sign, the resources are conflicting. Click on the PCMCIA Card and then on the PCMCIA Card Service, you can see the status of the PC card. If there is a yellow sign either on the adapter or the PC card, please check the following.

    1. Check to see if your computer has a free **IRQ.** If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1; COM 2 can be assigned the same IRQ values.
    2. Check that you have inserted the right card and have installed the proper driver.

In Windows 2000:

1. Check the **Windows 2000 Diagnostics.** See if there is any conflict in the **resource** allocation or the **I/O Address, IRQ** allocations. If you find that the **IRQ** or **I/O Addresses** are already assigned to some other devices, you must change that value. **I/O Address** needs 40h byte length.

2. Go to the **Control panel.** Double click on the **PCMCIA Card** and you will see **WLAN Adapter.** Double clicking on that will show you the **Card Information,** driver name and the driver **file.** If you do not find the names, there are some problems and the driver is not installed properly. Reinstall the driver.

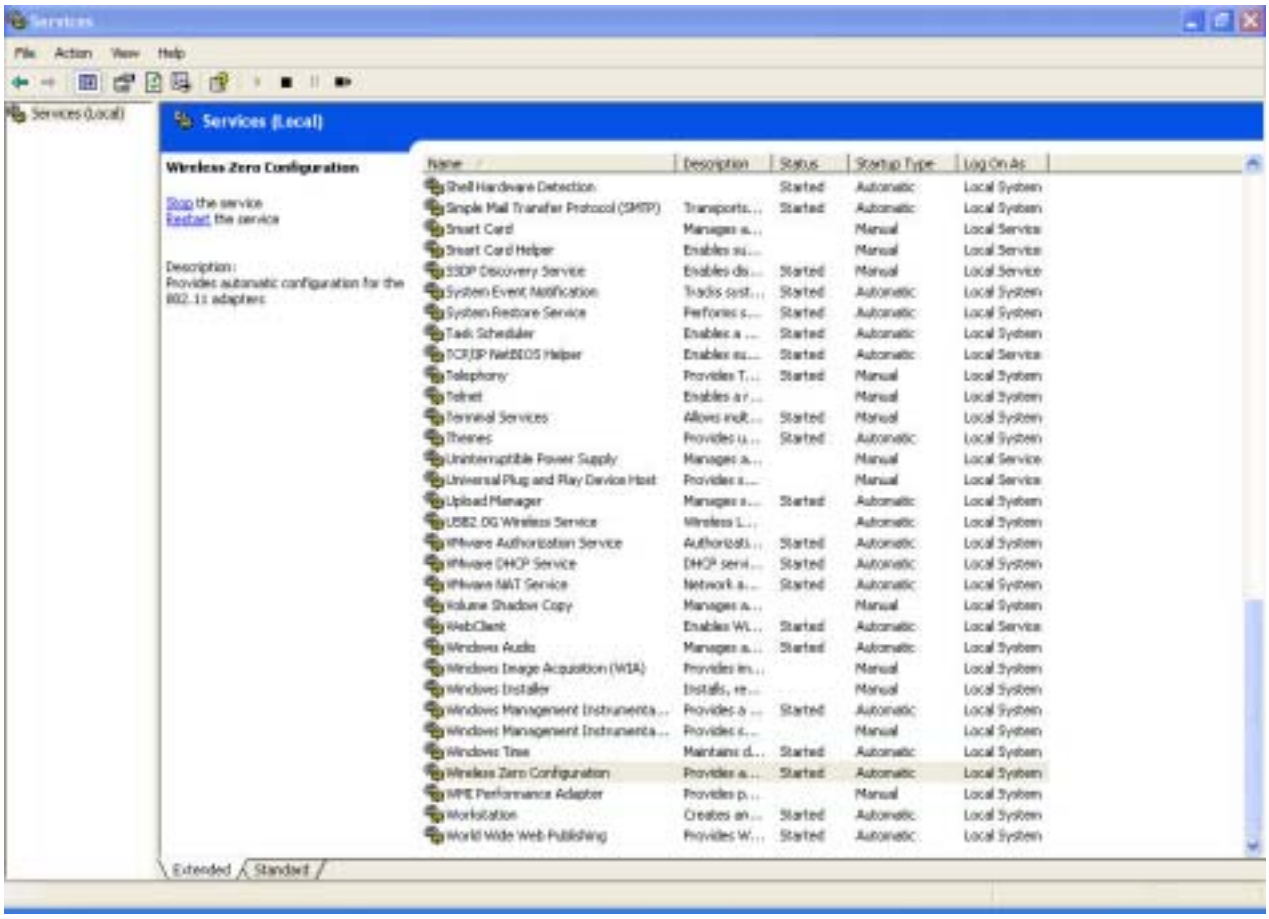
Note: Check the PnP BIOS setup menu and select **no** in case of the **WLAN Adapter** installation.

6. Appendix

6.1 Using WinXP Wireless Zero configuration for WPA setup

Step1:

Check and make sure that the Wireless Zero Configuration service is running.
Click **Start → Settings → Control Panel → Administrative Tools → Services**



Since WPA security standard has been defined after Windows XP lunch date, then you should also update your current Wireless Zero Configuration utility version to the latest. In order to do so, you must run the patch file which be included the CD or please visit the following website for download it.

http://www.microsoft.com/downloads/details.aspx?displaylang=en&familyid=009D8425-CE2B-47A4-ABEC-274845DC9E91

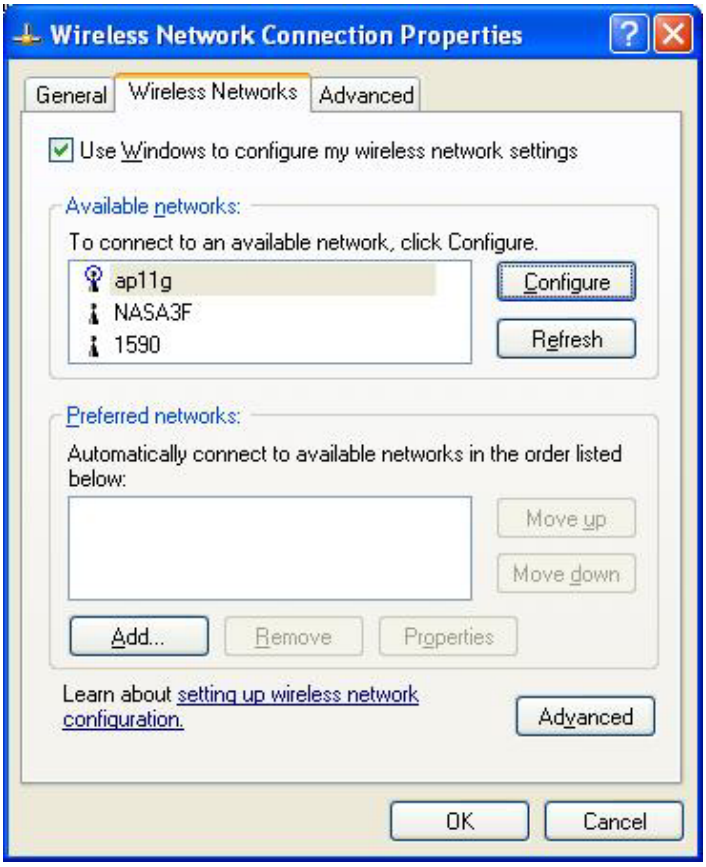
Once the above steps are complete, please proceed to the following page.

Step2:

Open the Wireless utility

Wireless Network Connection
The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.
Available wireless networks:
1590
ap11g
This wireless network requires the use of a network key (WEP). To access this network, type the key, then click Connect.
Network key:
Confirm network key:
Enable IEEE 802.1x authentication for this network
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

Click Advanced and the following screen will appear. Over the WPA wireless Network, click Configure.

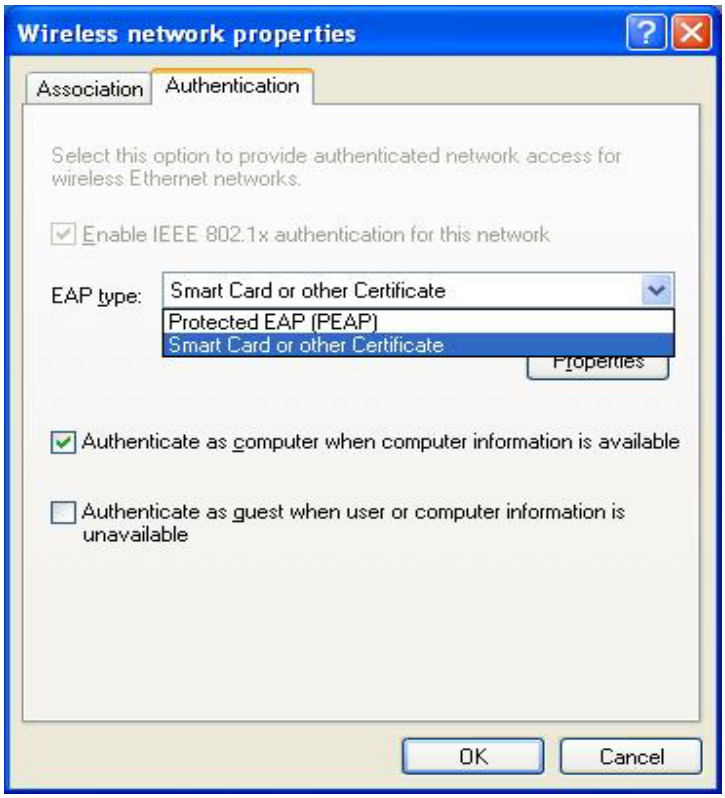


Step3:

Verify that the Network Authentication is WPA and the Data encryption is TKIP or AES. (The encryption type should match the WPA setting of your Access Point.)

Step4:

Click Authentication tab to select EAP type. (The EAP type should match the authentication server before access the authenticated network.)


Wireless network properties
Association
Authentication
Select this option to provide authenticated network access for wireless Ethernet networks.
Enable IEEE 802.1x authentication for this network
EAP type:
Smart Card or other Certificate
Protected EAP (PEAP)
Smart Card or other Certificate
Properties
Authenticate as computer when computer information is available
Authenticate as guest when user or computer information is unavailable
OK
Cancel

After clicking OK, the Wireless workstation will be able to associate with the AP previously get authenticated by an authentication Server.